Internet Censorship Circumvention Network
::Volunteer Relay Module

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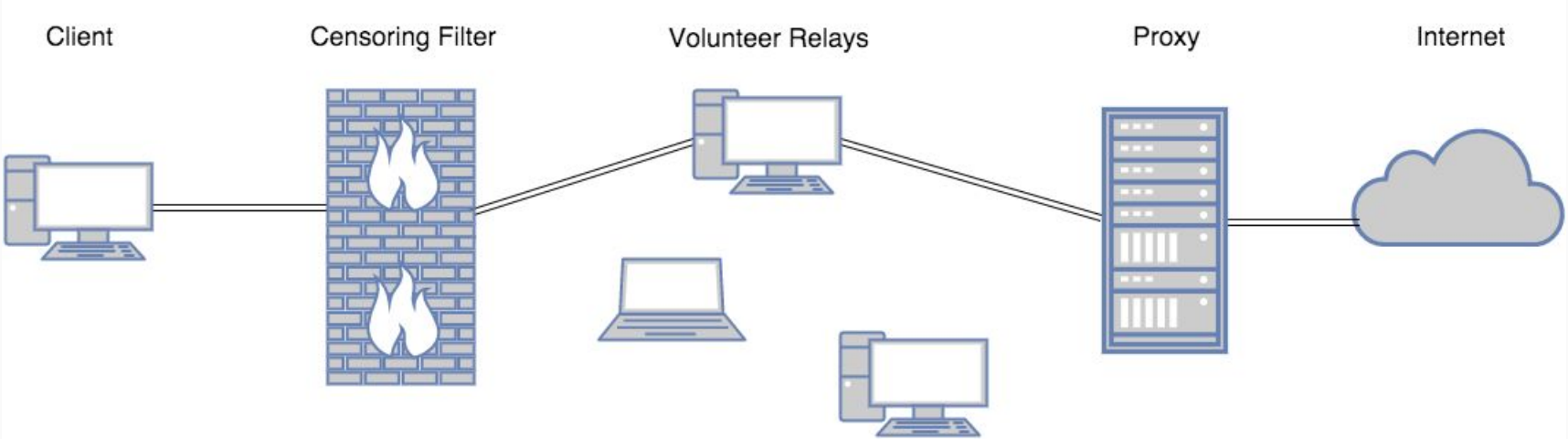
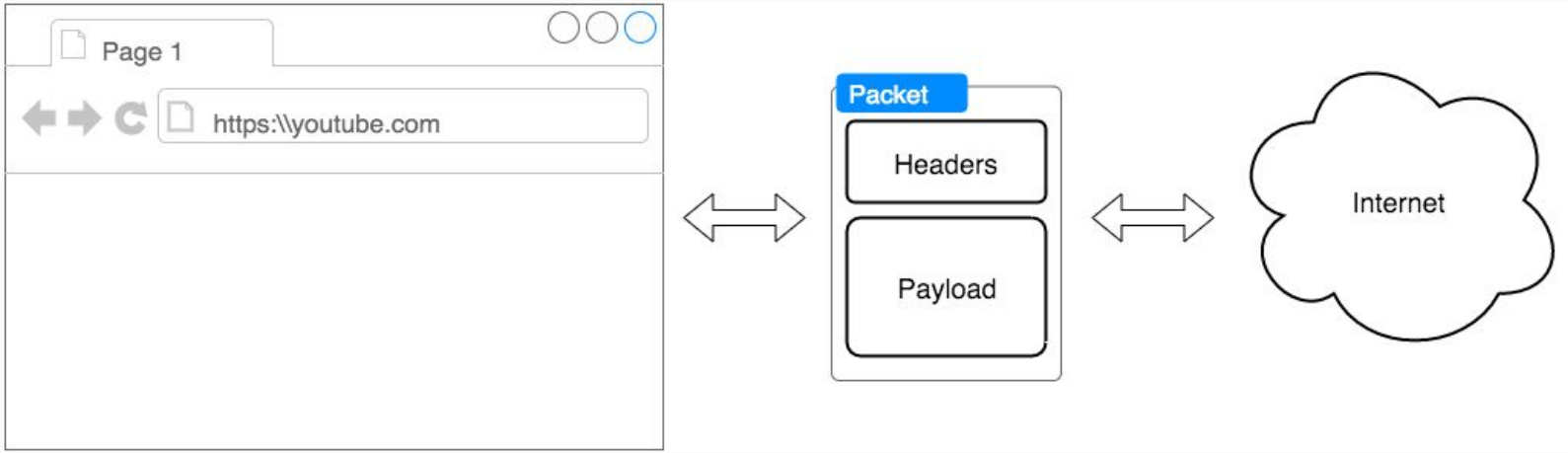
Some Background

The Bigger System

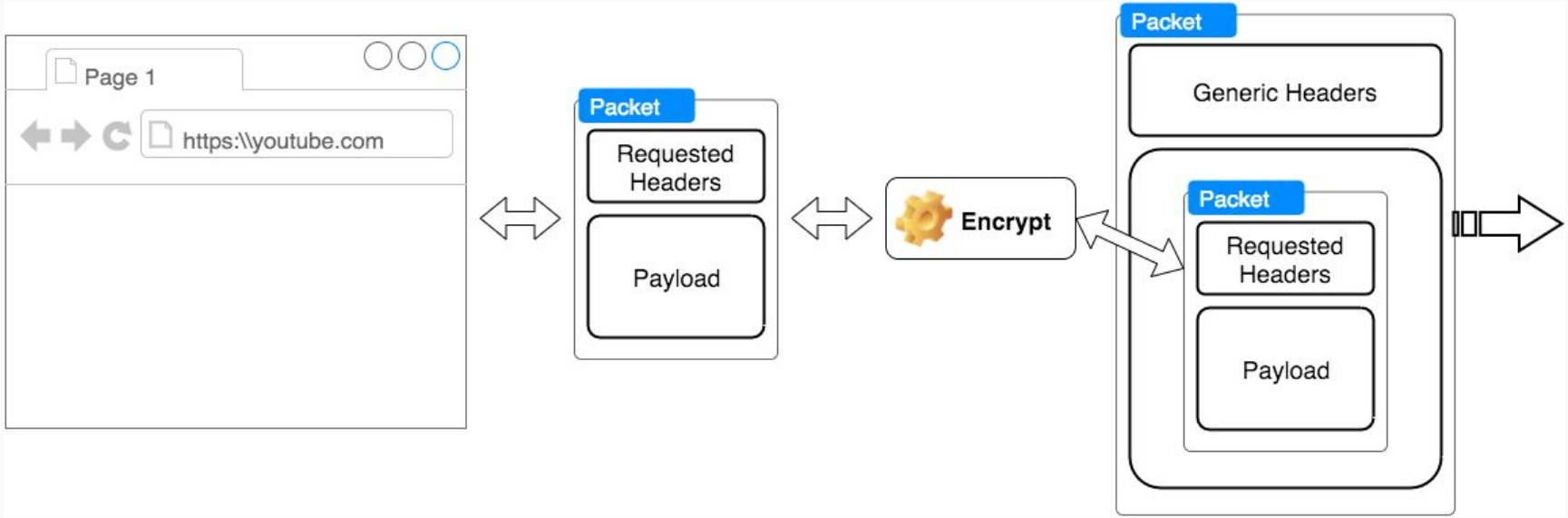
The Bigger Picture



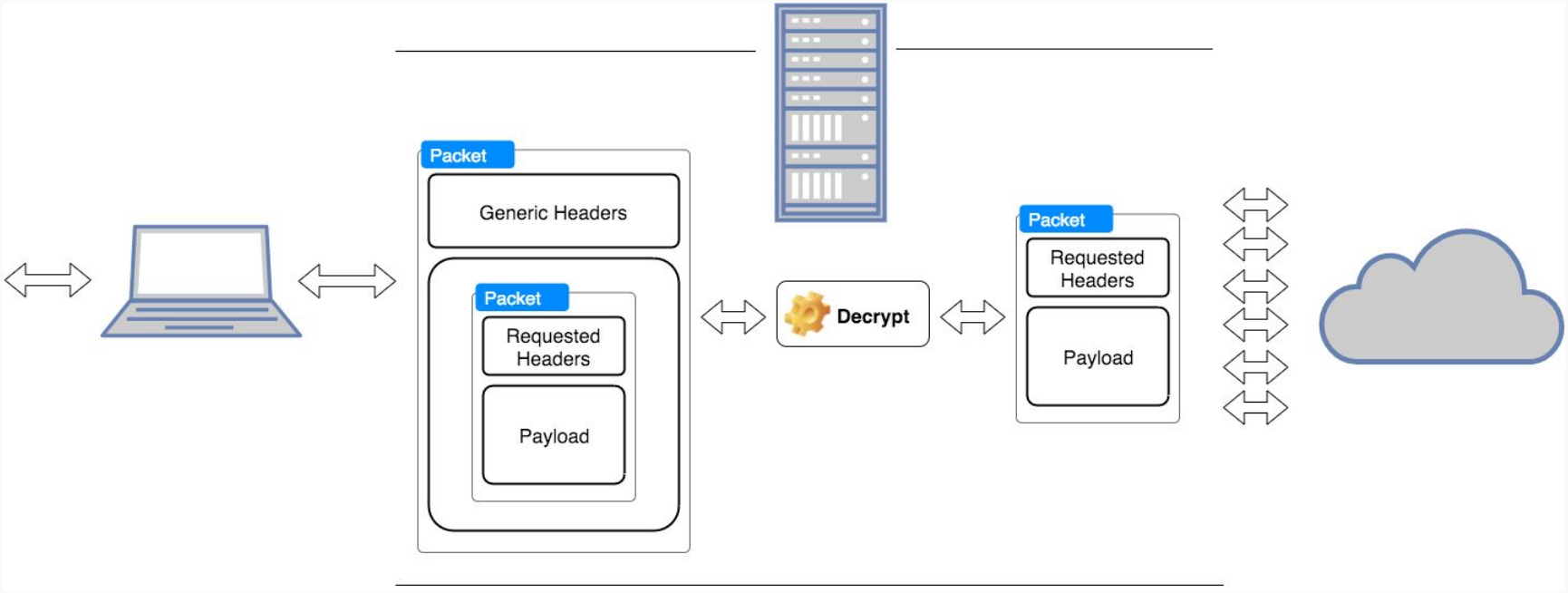
General Packet Transfer Flow



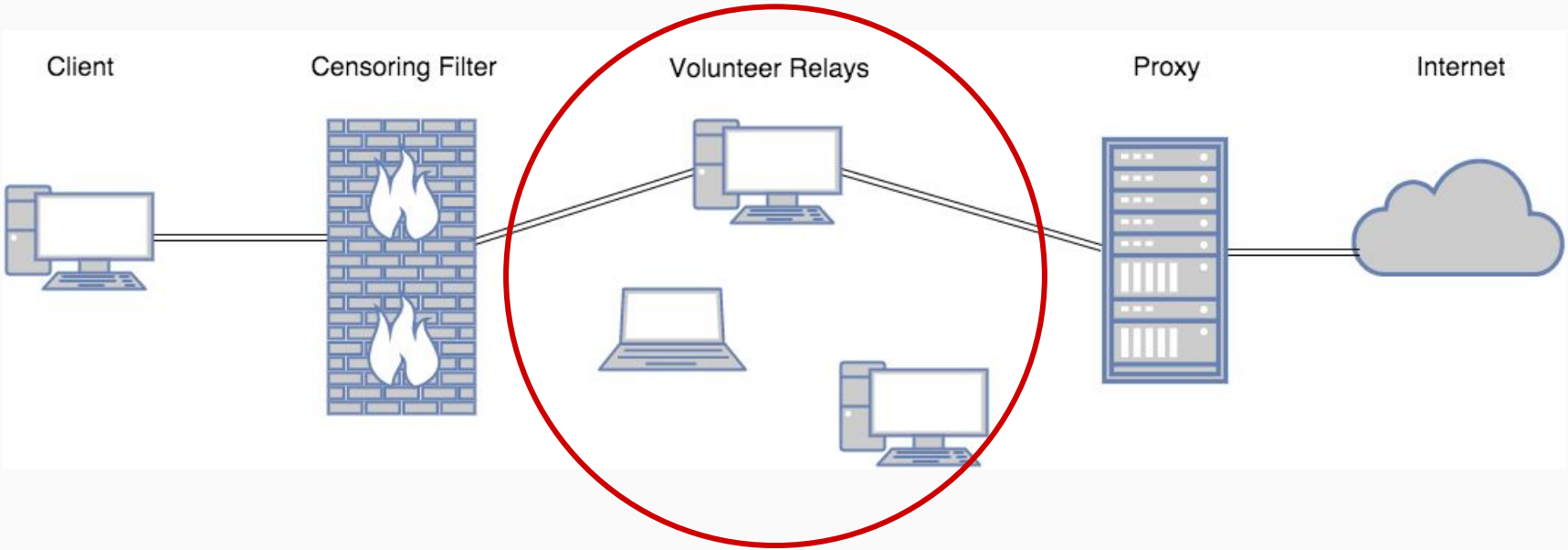
Hide Data Within Data



Relay and Fulfil the Request



The Focus

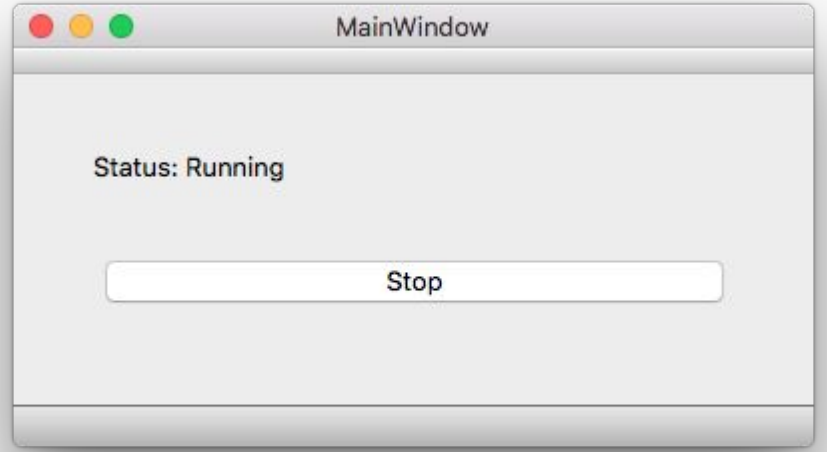


Volunteer Relay Module

Technology Used

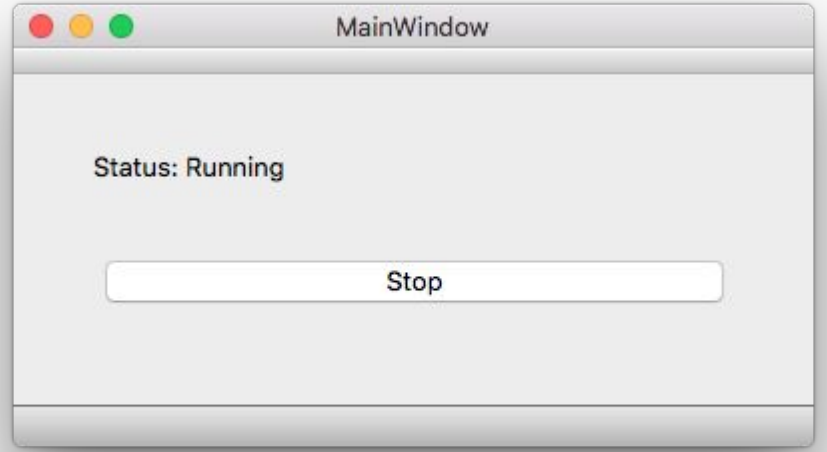
- Written in C++
- Qt Framework 5.5
- Cross-Platform
- Uses Baked-In OpenSSL 0.9.8
- Slot & Signals

I’m a Server



- Link Encryption
- TLSv1 Protocol Only
- Custom SSL Server from QTcpServer Class
- Listen For Incoming
- QSslSockets

I’m a Client



- Link Encryption
- TLSv1 Protocol Only
- Wait for Encrypted Socket Connection
- QSslSockets
- Certificate Pinning

The Tunnel

- Incoming data packets to socket buffer trigger a *Signal*
- *Slots* handle by writing bytes to the other socket buffer
- RSA/AES
- Pseudo-Random Symmetric Session Key Exchanged
- End-to-End Encryption

Future Work

- Stabilize connections
- Test on a bigger scale
- GUI
  - Display amount of bytes being transferred
  - Allow user to throttle
  - Application tampering protection

Questions?